

**Muons in barium (Ba)**

Z	A [g/mol]	$\rho$ [g/cm <sup>3</sup> ]	I [eV]	$a$	$k = m_s$	$x_0$	$x_1$	$\bar{C}$	$\delta_0$
56 (Ba)	137.327(7)	3.500	491.0	0.18268	2.8906	0.4190	3.4547	6.3153	0.14
$T$	$p$ [MeV/c]	Ionization	Brems	Pair prod [MeV cm <sup>2</sup> /g]	Photonucl	Total	CSDA range [g/cm <sup>2</sup> ]		
10.0 MeV	$4.704 \times 10^1$	4.394				4.394	$1.297 \times 10^0$		
14.0 MeV	$5.616 \times 10^1$	3.476				3.476	$2.331 \times 10^0$		
20.0 MeV	$6.802 \times 10^1$	2.750				2.750	$4.292 \times 10^0$		
30.0 MeV	$8.509 \times 10^1$	2.160				2.160	$8.449 \times 10^0$		
40.0 MeV	$1.003 \times 10^2$	1.859				1.860	$1.347 \times 10^1$		
80.0 MeV	$1.527 \times 10^2$	1.420				1.420	$3.883 \times 10^1$		
100. MeV	$1.764 \times 10^2$	1.342				1.342	$5.335 \times 10^1$		
140. MeV	$2.218 \times 10^2$	1.268				1.268	$8.414 \times 10^1$		
200. MeV	$2.868 \times 10^2$	1.234				1.234	$1.323 \times 10^2$		
233. MeV	$3.220 \times 10^2$	1.231				1.231	<i>Minimum ionization</i>		
300. MeV	$3.917 \times 10^2$	1.237	0.000		0.000	1.237	$2.134 \times 10^2$		
400. MeV	$4.945 \times 10^2$	1.258	0.000		0.000	1.259	$2.936 \times 10^2$		
800. MeV	$8.995 \times 10^2$	1.346	0.001		0.000	1.347	$6.002 \times 10^2$		
1.00 GeV	$1.101 \times 10^3$	1.381	0.001		0.000	1.382	$7.467 \times 10^2$		
1.40 GeV	$1.502 \times 10^3$	1.435	0.002	0.000	0.001	1.438	$1.030 \times 10^3$		
2.00 GeV	$2.103 \times 10^3$	1.494	0.003	0.001	0.001	1.500	$1.438 \times 10^3$		
3.00 GeV	$3.104 \times 10^3$	1.561	0.005	0.003	0.001	1.570	$2.089 \times 10^3$		
4.00 GeV	$4.104 \times 10^3$	1.606	0.007	0.006	0.002	1.621	$2.715 \times 10^3$		
8.00 GeV	$8.105 \times 10^3$	1.709	0.018	0.018	0.003	1.749	$5.081 \times 10^3$		
10.0 GeV	$1.011 \times 10^4$	1.740	0.024	0.025	0.004	1.793	$6.210 \times 10^3$		
14.0 GeV	$1.411 \times 10^4$	1.784	0.037	0.040	0.005	1.867	$8.395 \times 10^3$		
20.0 GeV	$2.011 \times 10^4$	1.827	0.057	0.065	0.008	1.958	$1.153 \times 10^4$		
30.0 GeV	$3.011 \times 10^4$	1.873	0.094	0.114	0.011	2.093	$1.647 \times 10^4$		
40.0 GeV	$4.011 \times 10^4$	1.903	0.133	0.167	0.015	2.219	$2.111 \times 10^4$		
80.0 GeV	$8.011 \times 10^4$	1.970	0.300	0.401	0.029	2.702	$3.741 \times 10^4$		
100. GeV	$1.001 \times 10^5$	1.990	0.389	0.528	0.036	2.944	$4.450 \times 10^4$		
140. GeV	$1.401 \times 10^5$	2.020	0.571	0.788	0.050	3.430	$5.708 \times 10^4$		
194. GeV	$1.937 \times 10^5$	2.047	0.825	1.154	0.068	4.096	<i>Muon critical energy</i>		
200. GeV	$2.001 \times 10^5$	2.050	0.856	1.199	0.071	4.177	$7.291 \times 10^4$		
300. GeV	$3.001 \times 10^5$	2.084	1.343	1.887	0.106	5.421	$9.388 \times 10^4$		
400. GeV	$4.001 \times 10^5$	2.108	1.846	2.599	0.141	6.696	$1.105 \times 10^5$		
800. GeV	$8.001 \times 10^5$	2.166	3.923	5.521	0.286	11.898	$1.547 \times 10^5$		
1.00 TeV	$1.000 \times 10^6$	2.185	4.990	7.016	0.359	14.552	$1.699 \times 10^5$		
1.40 TeV	$1.400 \times 10^6$	2.214	7.129	9.997	0.509	19.850	$1.933 \times 10^5$		
2.00 TeV	$2.000 \times 10^6$	2.245	10.400	14.546	0.736	27.928	$2.187 \times 10^5$		
3.00 TeV	$3.000 \times 10^6$	2.281	15.860	22.106	1.125	41.373	$2.479 \times 10^5$		
4.00 TeV	$4.000 \times 10^6$	2.307	21.394	29.746	1.520	54.968	$2.688 \times 10^5$		
8.00 TeV	$8.000 \times 10^6$	2.370	43.702	60.455	3.159	109.687	$3.193 \times 10^5$		
10.0 TeV	$1.000 \times 10^7$	2.391	54.943	75.891	4.000	137.226	$3.356 \times 10^5$		
14.0 TeV	$1.400 \times 10^7$	2.423	77.364	106.693	5.726	192.206	$3.601 \times 10^5$		
20.0 TeV	$2.000 \times 10^7$	2.457	111.192	153.092	8.370	275.112	$3.861 \times 10^5$		
30.0 TeV	$3.000 \times 10^7$	2.496	167.509	230.288	12.939	413.234	$4.155 \times 10^5$		
40.0 TeV	$4.000 \times 10^7$	2.525	224.027	307.667	17.614	551.834	$4.364 \times 10^5$		
80.0 TeV	$8.000 \times 10^7$	2.595	450.436	617.400	37.132	1107.564	$4.866 \times 10^5$		
100. TeV	$1.000 \times 10^8$	2.618	563.830	772.410	47.210	1386.070	$5.027 \times 10^5$		